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RESEARCH NOTE LS-62

LAKE STATES FOREST EXPERIMENT STATION • U. S. DEPARTMENT OF AGRICULTURE

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Botanical and Commercial Range of
Red Pine in the Lake States

Accurate maps showing the distribution of important tree species are valuable to foresters, botanists, wildlife specialists, land managers, and others. Although the general botanical ranges for our principal tree species have been well known for some time, new information continues to develop. Commercial ranges, however, have not previously been mapped very precisely, and artificial extensions of ranges generally have not been mapped at all. For these reasons, range maps of the principal Lake States forest tree species have been prepared¹ and that for red pine (*Pinus resinosa* Ait.) is presented here (fig. 1).

Accuracy depends in part on the scale of the map being used. On this map, it is not practical to separate out isolated stands except when they are some distance from the main range. Accordingly, the main range boundary is so drawn as to include several outliers near the edge of the principal distribution. To complete the southern portion of the range in the Lake States area, one verified outlier in Illinois has been shown.

In the silvical characteristics reports for Lake States tree species, commercial ranges were mapped but they were based on the following broad definition: "Commercial range is defined as the distribution of the species as a major or important component in the type, now or in the past, regardless of whether it is now being utilized." In this Note, commercial ranges are defined on a wood volume basis and are indicated for each county that presently has at least 1,000 cords of red pine (fig. 1). Counties with 10,000

to 99,000 cords and those with at least 100,000 cords of red pine are specially designated. The commercial range is based primarily on published reports of the Forest Survey, supplemented for completeness by unpublished data from the same source.

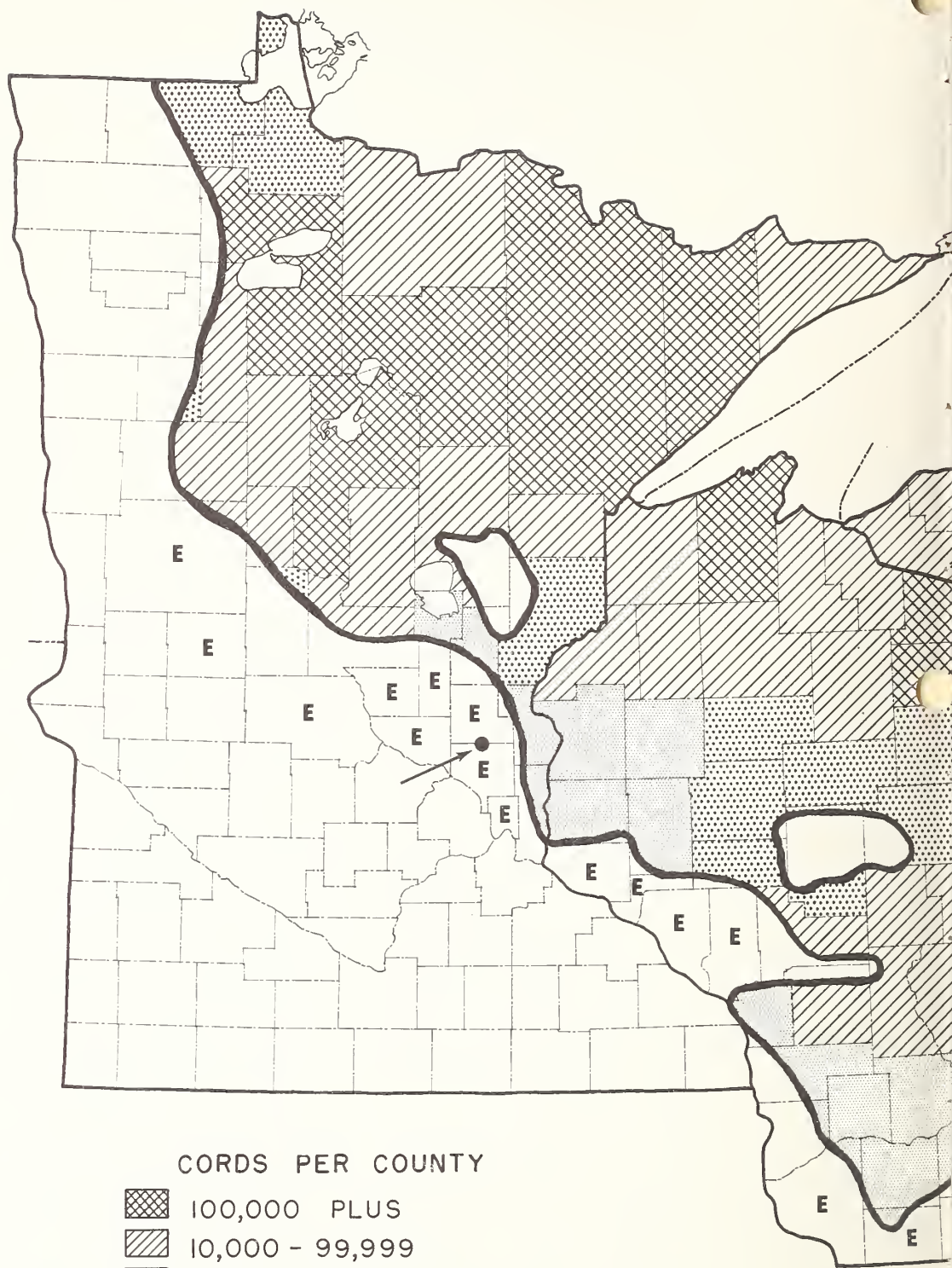
The map of botanical range is based on published reports² as modified by the observations of qualified foresters and botanists.³ A supplemental map (fig. 2) shows the plots used in making the distribution map. These plots were derived from actual herbarium specimens or from other reliable sources.

Within its natural range in the Lake States, red pine grows most commonly on level to gently rolling, very well-drained, sandy soils or gravels, although it also occurs less frequently on rocky areas, occasionally on heavy soils, and rarely in swamps. It grows both in extensive pure stands and in mixture with a number of tree species, the most common of which in the Lake States are jack pine, paper birch, the aspens (quaking and big-tooth), eastern white pine, red oaks (northern red, black, and northern pin), balsam fir, and the spruces (white and black).

² Fassett, Norman C. Preliminary reports on the flora of Wisconsin V. Coniferales, Wis. Acad. Sci., Arts, and Letters Trans. 25: 177-182, illus., 1930. Also, Rudolf, Paul O. Silvical characteristics of red pine, U.S. Forest Serv., Lake States Forest Expt. Sta., Sta. Paper 44, 31 pp., illus., 1958.

³ Information in this Note has been reviewed by Dr. E. J. Little, Jr., U.S. Forest Service; Dr. Gene A. Hesterberg and staff members, Michigan Technological University; Dr. Thomas Morley, University of Minnesota; Dr. E. G. Voss, University of Michigan; and staff members of the National Forests in the Lake States, the Michigan Department of Conservation, the Minnesota Department of Conservation, and all Lake States Forest Experiment Station Divisions and field units.

¹ A report on jack pine has already been published in this series (U.S. Forest Serv. Res. Note LS-15, 1963).



CORDS PER COUNTY



100,000 PLUS



10,000 - 99,999



1,000 - 9,999



NONCOMMERCIAL

E

100 ACRES OR MORE PLANTED

FIGURE 1.— Botanical and commercial range of red pine in the Lake States. The botanical range includes the areas within the heavy line. Arrows point to isolated stands at some distance from the main range. The commercial range includes all counties within the botanical range that have at least 1,000 cords of red pine.



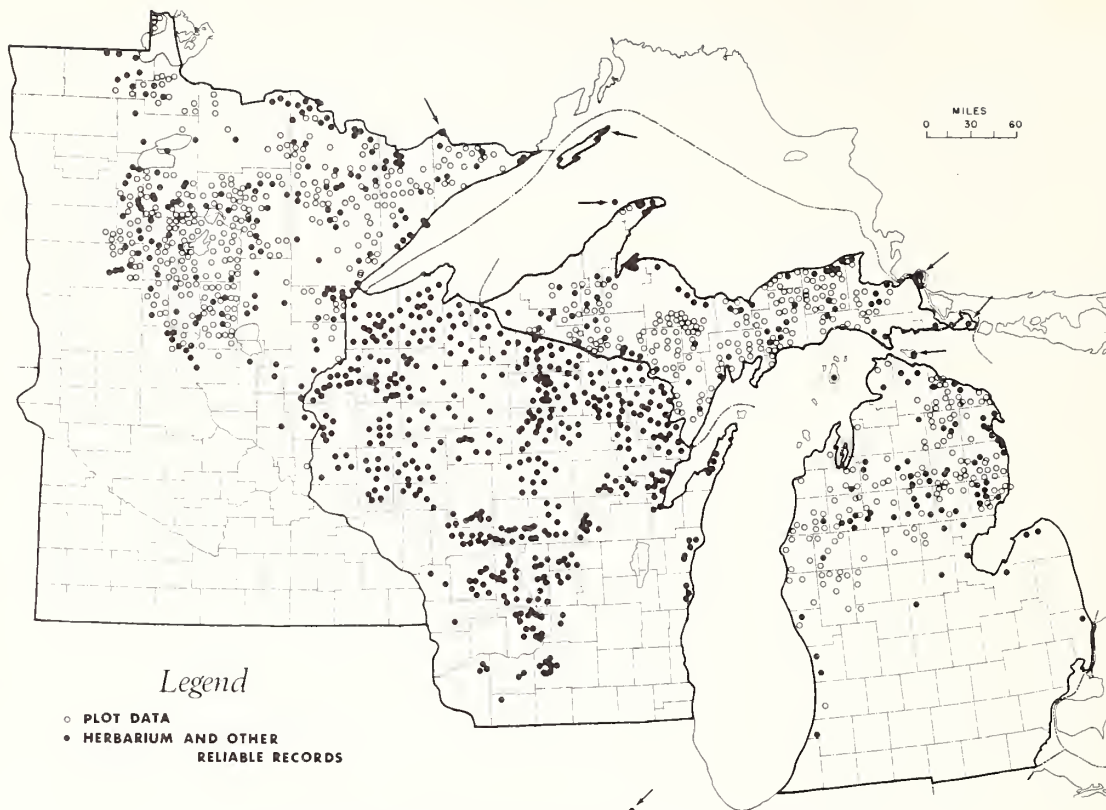


FIGURE 2.—Locations in which native *Pinus resinosa* is known to occur, according to herbarium and other reliable records based on identifiable plant material* or plot data. The latter were obtained from the Forest Survey, National Forest Timber Survey, State inventory plots, and cutting records.

*Includes material from (1) the following herbaria: Cranbrook Institute of Science, Michigan State University, Milwaukee Public Museum, University of Michigan, University of Minnesota (Duluth), University of Minnesota (Minneapolis), University of Wisconsin (Madison), and University of Wisconsin (Milwaukee); (2) seed collection records of the Lake States Forest Experiment Station and Michigan State University; (3) superior tree records of the Lake States Forest Experiment Station; (4) seed production areas on record at the Lake States Forest Experiment Station; (5) a vegetational survey made by Dr. Egon Bakuzis of the University of Minnesota, and (6) Fassett 1930 (see footnote 2) for most of the Wisconsin locations.

The natural distribution of red pine is outlined on the map (fig. 1). Planting, however, is beginning to extend the range and eventually may blur the outlines of the natural range. Where planting has been extensive enough to develop at least 100 acres per county of established stand, it has appeared in Forest Survey statistics. Data were also obtained from nursery distribution records and other State forestry sources. Stands of this extent beyond the known botanical range are shown by an "E" in the counties involved. Planting within the botanical distribution may increase the commercial range.

PAUL O. RUDOLF, Principal Silviculturist
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